

Substance Use and Cognitive Impairment

Introduction

According to the Center for Substance Abuse Treatment (CSAT, 1998), people with cognitive disabilities are more likely to have a substance use disorder and less likely to get effective treatment for it than those without such a coexisting disability. Cognitive impairments are disruptions of thinking skills, such as inattention, memory problems, perceptual problems, disruptions in communication, spatial disorientation, problems with sequencing (the ability to follow a set of steps in order to accomplish a task), misperception of time, and perseveration (constant repetition of meaningless or inappropriate words or phrases).

A significant body of research demonstrates that persons with alcohol abuse issues have poor attention and concentration, abstraction, and problem-solving skills, deficiencies in memory, visuospatial and executive functioning and perceptual motor deficits (Teichner et al., 2002, Cleaveland, 1998). Paraherakis, Charney, & Gill (2001) reported that alcohol and benzodiazepene-addicted clients exhibited higher levels of cognitive impairment and psychological distress than patients dependent on other drugs.

More recent research is examining the relationship of other drug usage to neuropsychological performance. Kalechstien, Newton, & Green (2003) found that methamphetamine-dependence individuals performed significantly worse than control subjects on neurocognitive measures sensitive to attention/psychomotor speed, on measures of verbal learning and memory, and on executive system measures sensitive to fluency. Sclafani et al. (2002) reported that two groups of patients – crack dependent and crack and alcohol dependent exhibited significant cognitive impairment in a wide range of functions and were still impaired significantly at 6 months of abstinence. Block, Erwing, & Ghoneim (2002) also concluded that chronic drug use (specifically stimulant, alcohol, or polydrug) is associated with cognitive impairments that do not improve substantially even after several months of abstinence. Minter and Stitzer (2002) tested opioid-dependent methadone maintenance patients (MMP) and found impairment in psychomotor speed, working memory, decision-making, and metamemory, as well as possible impairment in inhibitory mechanisms. Davis, Liddiard, & McMillan (2002) also conclude that the risk of neuropsychological impairment is greater in opiate users, and that recovery may occur during abstinence. Solosij et al. (2002) found that long-term cannabis users performed

significantly less well on tests of memory and attention. They conclude that long-term heavy cannabis users' memory and attention impairments endure beyond the intoxication period and worsen with increasing years of regular cannabis use.

Co-morbidity Issues

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Both substance use disorder and cognitive impairment need to be addressed to reduce the number of psychiatric admissions and their associated length of stay. Jackson et al. (2001) found that substance use disorder was a significant predictor of lifetime hospitalizations, and cognitive impairment was a significant predictor of the months hospitalized for a population of outpatients with schizophrenia. Block, Bates & Hall (2003) reported that patients with cognitive impairment entered treatment with more severe problems (as measured by the ASI) than those without cognitive impairment.

Treatment Outcomes

Recent research seems to indicate that cognitive impairment does not automatically lead to poorer treatment outcomes, but does need to be taken into consideration as a treatment concern. Blume, Davis & Schmalling (1999) found that in a dually diagnosed population, higher general intellectual, executive, and memory functioning were significantly related to greater scores in readiness to change substance abuse.

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Morgenstern and Bates (1999) concluded that executive function impairment did not directly predict worse substance use outcomes, nor difficulty acquiring or maintaining change processes and thus is not a significant predictor of poor treatment response in a 12-step treatment. Teichner et al. (2002) found that substance use disorder patients attending an intensive outpatient hospital rehabilitation program experienced significant treatment gains irrespective of their cognitive impairment. Outcomes included alcohol, drug, medical, legal, psychological, employment and family functioning related treatment outcomes. However, cognitive impairment was related to an increased likelihood of treatment dropout. Aharonovich, Nunes and Hasin (2003) also found that treatment completers had demonstrated significantly better cognitive functioning than patients who dropped out of treatment using cognitive-behavioral

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therapy (CBT) for a sample of cocaine-dependent patients. Cox et al. (2003) found that Systemic Motivational Counseling (SMC) on adults following traumatic brain injury (TBI) resulted in significant improvements in motivational structure and a significant reduction in negative affect and the use of substances of abuse.

Treatment Issues

New treatment options addressing cognitive functioning levels are being developed. For example, an Information-Motivation-Behavioral Skills model of HIV preventive behaviors model of HIV prevention addresses issues related to impairment in cognitive functioning (Copenhaver et al., 2003).

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Cleaveland and Denier (1998) provide a series of recommendations for presenting information in a way to overcome various cognitive deficits and improve treatment compliance and attendance. Included are suggestions as how to present patient treatment materials in a way to optimize attention, improve comprehension, and improve both short-term and long-term retention.

Conclusion

The relationship between substance abuse and cognitive impairment continues to be an area of active research. Although people with cognitive disabilities are less likely to get effective treatment for substance abuse, research indicates that cognitive impairment does not automatically result in poorer outcomes for those that seek treatment.

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